

What is claimed is:

- 1 1. A method of dynamically adjusting database performance in a computer
2 system, the method comprising:
3 receiving a request for a temporary allocation of a system resource for a
4 database query to be executed in the future; and
5 dynamically and temporarily adjusting resource allocation in the computer
6 system in response to receiving the request such that the database query is
7 executed under the adjusted resource allocation.
- 1 2. The method of claim 1, wherein receiving the request and dynamically and
2 temporarily adjusting resource allocation is performed by a performance adjuster that
3 periodically adjusts resource allocation in the computer system.
- 1 3. The method of claim 1, wherein the system resource is selected from the group
2 consisting of a memory resource, a processor resource, an input/output resource, a storage
3 resource, and a machine resource.
- 1 4. The method of claim 1, wherein the database query is allocated to a memory
2 pool in the computer system, wherein the request specifies at least one adjusted parameter
3 for the memory pool, and wherein dynamically and temporarily adjusting resource
4 allocation includes adjusting the memory pool based upon the specified at least one
5 adjusted parameter.
- 1 5. The method of claim 4, wherein the adjusted parameter specifies a reduction in
2 maximum activity permitted in the memory pool, and wherein dynamically and
3 temporarily adjusting resource allocation includes reducing maximum activity permitted
4 in the memory pool to that specified in the request.

1 6. The method of claim 4, wherein the adjusted parameter specifies additional
2 memory to be allocated to the memory pool, and wherein dynamically and temporarily
3 adjusting resource allocation includes allocating the specified additional memory to the
4 memory pool.

1 7. The method of claim 4, wherein the request additionally specifies a duration,
2 and wherein dynamically and temporarily adjusting resource allocation includes
3 readjusting the memory pool after the specified duration.

1 8. The method of claim 7, wherein the duration specified in the request identifies
2 a time interval, and wherein readjusting the memory pool after the specified duration
3 includes readjusting the memory pool after the time interval.

1 9. The method of claim 7, wherein the duration specified in the request specifies
2 a completion criterion, and wherein readjusting the memory pool after the specified
3 duration includes readjusting the memory pool upon meeting the completion criterion.

1 10. The method of claim 4, wherein dynamically and temporarily adjusting
2 resource allocation includes readjusting the memory pool upon completion of execution
3 of the database query.

1 11. The method of claim 4, further comprising determining whether to grant the
2 request, wherein dynamically and temporarily adjusting resource allocation is performed
3 only if a determination is made to grant the request.

1 12. The method of claim 11, wherein the request additionally specifies a priority,
2 and wherein determining whether to grant the request is based at least in part on the
3 specified priority.

1 13. The method of claim 11, wherein determining whether to grant the request is
2 based upon at least one of a current system workload, available memory in the memory
3 pool, a number of current jobs in the memory pool, a number of current threads in the
4 memory pool, and a rate of change of activity in the memory pool.

1 14. The method of claim 1, further comprising generating the request using a
2 query optimizer in connection with generating an access plan for the database query.

1 15. A method of performing a database query on a computer system, the method
2 comprising:
3 generating an access plan for the database query, including determining an
4 adjustment to a resource allocation in the computer system that optimizes
5 execution of the access plan;
6 dynamically and temporarily applying the adjustment to the resource
7 allocation in the computer system; and
8 executing the access plan while the adjustment to the resource allocation
9 in the computer system is applied.

1 16. The method of claim 15, wherein the adjustment to the resource allocation in
2 the computer system comprises allocation of an additional system resource selected from
3 the group consisting of a memory resource, a processor resource, an input/output
4 resource, a storage resource, and a machine resource.

1 17. The method of claim 15, wherein generating the access plan is performed by a
2 query optimizer, and wherein dynamically and temporarily applying the adjustment is
3 performed by a performance adjuster that periodically adjusts resource allocation in the
4 computer system.

1 18. The method of claim 15, wherein generating the access plan further includes
2 generating a request specifying the adjustment to the resource allocation, and wherein
3 dynamically and temporarily applying the adjustment is performed responsive to the
4 request.

1 19. The method of claim 18, wherein the database query is allocated to a memory
2 pool in the computer system, wherein the request specifies at least one adjusted parameter
3 for the memory pool, and wherein dynamically and temporarily applying the adjustment

4 includes adjusting the memory pool based upon the specified at least one adjusted
5 parameter.

1 20. The method of claim 19, wherein the adjusted parameter specifies a reduction
2 in maximum activity permitted in the memory pool, and wherein dynamically and
3 temporarily applying the adjustment includes reducing maximum activity permitted in the
4 memory pool to that specified in the request.

1 21. The method of claim 19, wherein the adjusted parameter specifies additional
2 memory to be allocated to the memory pool, and wherein dynamically and temporarily
3 applying the adjustment includes allocating the specified additional memory to the
4 memory pool.

1 22. The method of claim 19, wherein the request additionally specifies a duration,
2 and wherein dynamically and temporarily applying the adjustment includes readjusting
3 the memory pool after the specified duration.

1 23. The method of claim 19, further comprising determining whether to grant the
2 request, wherein dynamically and temporarily applying the adjustment is performed only
3 if a determination is made to grant the request.

1 24. The method of claim 23, wherein the request additionally specifies a priority,
2 and wherein determining whether to grant the request is based at least in part on the
3 specified priority.

1 25. The method of claim 23, wherein determining whether to grant the request is
2 based upon at least one of a current system workload, available memory in the memory
3 pool, a number of current jobs in the memory pool, a number of current threads in the
4 memory pool, and a rate of change of activity in the memory pool.

1 26. An apparatus, comprising:

2 at least one processor;

3 a memory; and

4 program code resident in the memory and configured to be executed by the
5 at least one processor to dynamically adjust database performance in the apparatus
6 by receiving a request for a temporary allocation of a system resource for a
7 database query to be executed in the future, and dynamically and temporarily
8 adjusting resource allocation in the apparatus in response to receiving the request
9 such that the database query is executed under the adjusted resource allocation.

1 27. The apparatus of claim 26, wherein the program code comprises a
2 performance adjuster configured to periodically adjust resource allocation in the
3 apparatus.

1 28. The apparatus of claim 26, further comprising a memory pool, wherein the
2 database query is allocated to the memory pool, wherein the request specifies at least one
3 adjusted parameter for the memory pool, and wherein the program code is configured to
4 dynamically and temporarily adjust resource allocation by adjusting the memory pool
5 based upon the specified at least one adjusted parameter.

1 29. The apparatus of claim 28, wherein the adjusted parameter specifies at least
2 one of a reduction in maximum activity permitted in the memory pool and additional
3 memory to be allocated to the memory pool.

1 30. The apparatus of claim 28, wherein the request additionally specifies a
2 duration, and wherein the program code is further configured to readjust the memory pool
3 after the specified duration.

1 31. The apparatus of claim 28, wherein the program code is further configured to
2 determine whether to grant the request based upon at least one of a priority specified by
3 the request, a current system workload, available memory in the memory pool, a number
4 of current jobs in the memory pool, a number of current threads in the memory pool, and
5 a rate of change of activity in the memory pool.

1 32. The apparatus of claim 26, further comprising a query optimizer configured to
2 generate the request in connection with generating an access plan for the database query.

1 33. An apparatus, comprising:

2 at least one processor;

3 a memory; and

4 program code resident in the memory and configured to be executed by the
5 at least one processor to determine, in association with generating an access plan
6 for the database query, an adjustment to a resource allocation in the apparatus that
7 optimizes execution of the access plan, to dynamically and temporarily apply the
8 adjustment to the resource allocation, and to execute the access plan while the
9 adjustment to the resource allocation is applied.

1 34. The apparatus of claim 33, wherein the program code comprises a query

2 optimizer configured to generate the access plan, and a performance adjuster configured
3 to dynamically and temporarily apply the adjustment to the resource allocation, wherein
4 the performance adjuster is further configured to periodically adjust resource allocation in
5 the apparatus.

1 35. The apparatus of claim 33, wherein the program code is further configured to

2 generate a request specifying the adjustment to the resource allocation, and wherein the
3 program code is configured to dynamically and temporarily apply the adjustment
4 responsive to the request.

1 36. The apparatus of claim 35, further comprising a memory pool, wherein the

2 database query is allocated to the memory pool, wherein the request specifies at least one
3 adjusted parameter for the memory pool, and wherein the program code is configured to
4 dynamically and temporarily adjust resource allocation by adjusting the memory pool
5 based upon the specified at least one adjusted parameter.

1 37. The apparatus of claim 36, wherein the adjusted parameter specifies at least
2 one of a reduction in maximum activity permitted in the memory pool and additional
3 memory to be allocated to the memory pool.

1 38. The apparatus of claim 36, wherein the request additionally specifies a
2 duration, and wherein the program code is further configured to readjust the memory pool
3 after the specified duration.

1 39. The apparatus of claim 36, wherein the program code is further configured to
2 determine whether to grant the request based upon at least one of a priority specified by
3 the request, a current system workload, available memory in the memory pool, a number
4 of current jobs in the memory pool, a number of current threads in the memory pool, and
5 a rate of change of activity in the memory pool.

1 40. A program product, comprising:

2 program code configured to dynamically adjust database performance in a
3 computer system by receiving a request for a temporary allocation of a system
4 resource for a database query to be executed in the future, and dynamically and
5 temporarily adjusting resource allocation in the computer system in response to
6 receiving the request such that the database query is executed under the adjusted
7 resource allocation; and

8 a computer readable signal bearing medium bearing the program code.

1 41. The program product of claim 40, wherein the computer readable signal
2 bearing medium includes at least one of a transmission medium and a recordable
3 medium.

1 42. A program product, comprising:

2 program code configured to determine, in association with generating an
3 access plan for the database query, an adjustment to a resource allocation in a
4 computer system that optimizes execution of the access plan, to dynamically and
5 temporarily apply the adjustment to the resource allocation, and to execute the
6 access plan while the adjustment to the resource allocation is applied; and
7 a computer readable signal bearing medium bearing the program code.

1 43. The program product of claim 42, wherein the computer readable signal
2 bearing medium includes at least one of a transmission medium and a recordable
3 medium.